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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,908	09/12/2003	Samantha D. Smith	58575US002	8328
32692 7590 06/01/2007 3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427			EXAMINER BRUENJES, CHRISTOPHER P	
			ART UNIT	PAPER NUMBER
			1772	
			NOTIFICATION DATE	DELIVERY MODE
			06/01/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.		Applicant(s)	
	10/661,908		SMITH ET AL.	
	Examiner		Art Unit	
	Christopher P. Bruenjes		1772	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) 17-41 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16,42 and 43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20041206, 20031215</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I, claims 1-16 and 42-43 in the reply filed on March 29, 2007 is acknowledged. The traversal is on the ground(s) that the claims are so interrelated that there would not be a burden to in searching of the claims together. This is not found persuasive because while searches may be expected to overlap for related inventions, there is no reason to expect they would be coextensive.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 17-41 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on March 29, 2007.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The melt flow index claimed, is claimed without any units. Melt flow index is typically expressed in terms of dg/min or g/10 min. However, without any units the range is indefinite because the numbers could represent a multitude of different values.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-2, 4-11, 13-16, and 42-43 are rejected under 35 U.S.C. 102(b) as being anticipated by Radovanovic et al (WO 00/09597 A1).

Regarding claims 1, 6 and 9, Radovanovic et al teach a shaped article in the form of a film, membrane, or sheet (p.3,

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1.29-30). The article comprises a melt-processable, semi-crystalline thermoplastic polymer (p.2, 1.37-29). The melt-processable polymer is polyvinylidene fluoride having a melt flow index above 0.2 dg/min (p.5, 1.7-9). The article further comprises a nucleating agent (p.9, 1.29 - p.10, 1.2). The purpose of adding a nucleating agent to a polymeric composition is to initiate crystallization of the polymer at a significantly greater number of crystallization sites as compared to crystallization without the nucleating agent. Furthermore, Radovanovic et al teach that addition of nucleating agents will increase the rate of crystallization of the polymer (p.10, 1.21-24). The article is microporous and has been oriented in at least one direction at a stretch ratio of at least approximately 1.1 to 1.0 (p.10, 1.25-27 and p.11, 1.12-15).

Regarding claim 2, the nucleating agent is added in an amount less than 10% and preferably less than 2% by weight of the polyvinylidene fluoride (p.10, 1.2-4).

Regarding claim 4, the article is biaxially oriented (p.10, 1.27).

Regarding claim 5, the article has micropores and micropores are partially or completely filled with an additional substance (p.12, 1.4-15).

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Regarding claim 7, the article is coated with a coating material when the film is imbibed a liquid, solvent solution, solvent dispersion or solid is coated on the article to imbibe. Furthermore, the broadest reasonable interpretation of coating material includes any material that is applied to the article and Radovanovic et al teach adding additional porous layers. The limitation that the coating material is "coated" on the article is given little patentable weight because articles are defined only by the structure that results from the method claimed in process limitations and whether a material is added by extrusion, coextrusion, or coated does not make a substantial structural difference.

Regarding claim 8, the article is combined with at least one other material to form a laminated structure (p.12, 1.16-18).

Regarding claims 10 and 14, Radovanovic et al teach a shaped article in the form of a film, membrane, or sheet (p.3, 1.29-30). The article comprises a melt-processable, semi-crystalline thermoplastic polymer (p.2, 1.37-29). The melt-processable polymer is polyvinylidene fluoride having a melt flow index above 0.2 dg/min (p.5, 1.7-9). The article further comprises a nucleating agent (p.9, 1.29 - p.10, 1.2). The purpose of adding a nucleating agent to a polymeric composition

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is to initiate crystallization of the polymer at a significantly greater number of crystallization sites as compared to crystallization without the nucleating agent. Furthermore, Radovanovic et al teach that addition of nucleating agents will increase the rate of crystallization of the polymer (p.10, 1.21-24). The article further comprises a diluent with which the polyvinylidene fluoride are miscible, and in which the polyvinylidene fluoride will dissolve at or above the melting temperature of the polyvinylidene fluoride and will phase separate upon cooling to a temperature at or below the crystallization or phase separation temperature of the polyvinylidene fluoride (p.7, 1.29 - p.8, 1.7). The article is microporous and has been oriented in at least one direction at a stretch ratio of at least approximately 1.1 to 1.0 (p.10, 1.25-27 and p.11, 1.12-15).

Regarding claim 11, the nucleating agent is added in an amount less than 10% and preferably less than 2% by weight of the polyvinylidene fluoride (p.10, 1.2-4).

Regarding claim 13, the article has micropores and micropores are partially or completely filled with an additional substance (p.12, 1.4-15).

Regarding claim 15, the article is biaxially oriented (p.10, 1.27).

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Regarding claim 16, the article is coated with a coating material when the film is imbibed a liquid, solvent solution, solvent dispersion or solid is coated on the article to imbibe. Furthermore, the broadest reasonable interpretation of coating material includes any material that is applied to the article and Radovanovic et al teach adding additional porous layers. The limitation that the coating material is "coated" on the article is given little patentable weight because articles are defined only by the structure that results from the method claimed in process limitations and whether a material is added by extrusion, coextrusion, or coated does not make a substantial structural difference.

Regarding claims 42 and 43, Radovanovic et al teach that the article comprises a membrane (p.1, 1.5) and the membrane is asymmetric because it is formed with 2 layers and the 2 layers are different (p.12, 1.16-18).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at

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the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 3 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Radovanovic et al as applied to claims 2 and 11 as shown above in view of Schneider et al (The article entitled "Self-Nucleation and enhanced nucleation of polyvinylidene fluoride (alpha-phase)").

Radovanovic et al teach that nucleating agents are used in the formation of the article, but fail to teach the specific nucleating agent used. However, Schneider et al teach that enhanced nucleation of PVDF is achieved by use of flavanthrone and polytetrafluoroethylene (p.1, col.2, 1.7-10). Pigment Yellow 24 claimed by applicant is a flavanthrone as specified in Applicant's specification. It would have been obvious to one having ordinary skill in the art at the time Applicant's

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invention was made to select flavanthrone or polytetrafluoroethylene as nucleating agents for use in polyvinylidene fluoride polymeric articles because they provide enhanced nucleation for PVDF specifically, as taught by Schneider et al.

Therefore, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to select flavanthrone or polytetrafluoroethylene as nucleating agents used in the shaped article of Radovanovic et al because Radovanovic et al teach that the nucleating agents are added to enhance nucleation of the polymer and Schneider et al teach that specifically for PVDF, flavanthrone and polytetrafluoroethylene provide enhanced nucleation.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P. Bruenjes whose telephone number is 571-272-1489. The examiner can normally be reached on Monday thru Friday from 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on 571-272-1498. The fax phone number for the

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organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Christopher P Bruenjes

Examiner

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CPB 

May 25, 2007